**Day 14 - Scope**

<https://www.hackerrank.com/challenges/30-scope/problem>

**Objective**  
Today we're discussing scope. Check out the [Tutorial](https://www.hackerrank.com/challenges/30-scope/tutorial) tab for learning materials and an instructional video!

The absolute difference between two integers, a and b, is written as |a-b|. The maximum absolute difference between two integers in a set of positive integers, elements, is the largest absolute difference between any two integers in \_elements.

The Difference class is started for you in the editor. It has a private integer array (elements) for storing N non-negative integers, and a public integer (maximumDifference) for storing the maximum absolute difference.

**Task**  
Complete the Difference class by writing the following:

* A class constructor that takes an array of integers as a parameter and saves it to the \_elements instance variable.
* A computeDifference method that finds the maximum absolute difference between any 2 numbers in \_elements and stores it in the maximumDifference instance variable.

**Input Format**

You are not responsible for reading any input from stdin. The locked Solution class in the editor reads in 2 lines of input. The first line contains N, the size of the elements array. The second line has N space-separated integers that describe the \_elements array.

**Constraints**

* 1 <= N <= 10
* 1 <= \_elements[i] <= 100, where 0 <= I <= N - 1

**Output Format**

You are not responsible for printing any output; the Solution class will print the value of the maximumDifference instance variable.

**Sample Input**

STDIN Function

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3 \_elements[] size N = 3

1 2 5 \_elements = [1, 2, 5]

**Sample Output**

4

**Explanation**

The scope of the \_elements array and maximumDifference integer is the entire class instance. The class constructor saves the argument passed to the constructor as the \_elements instance variable (where the computeDifference method can access it).

To find the maximum difference, computeDifference checks each element in the array and finds the maximum difference between any 2 elements: |1 -2| = 1  
|1-5| = 4

|2-5| = 3

The maximum of these differences is 4, so it saves the value 4 as the maximumDifference instance variable. The locked stub code in the editor then prints the value stored as maximumDifference, which is 4.